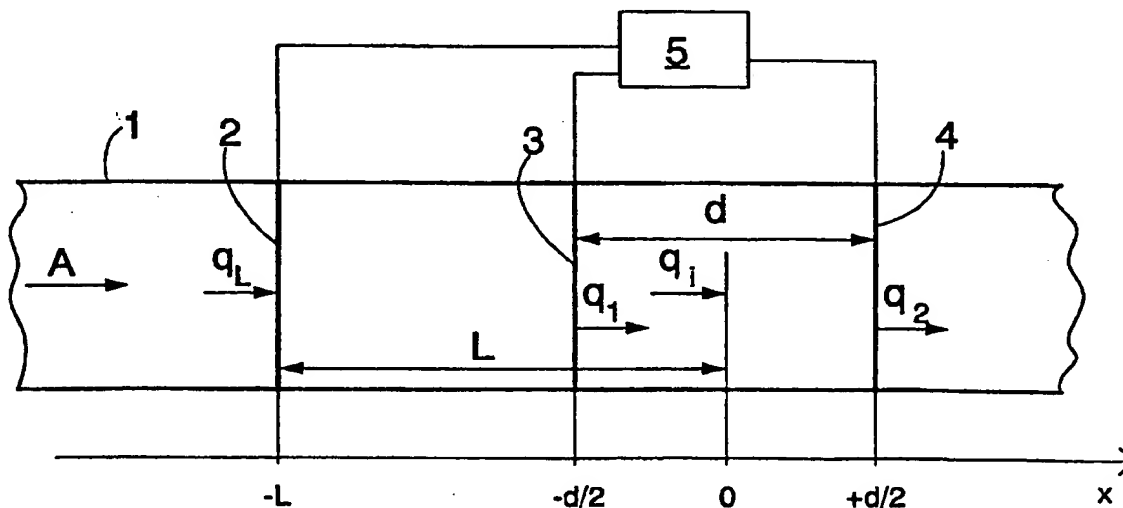


INTERNATIONAL APPLICATION/PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

| | | |
|---|-----------|---|
| (51) International Patent Classification ⁶: G10K 11/178 | A1 | (11) International Publication Number: WO 99/14736 (43) International Publication Date: 25 March 1999 (25.03.99) |
| (21) International Application Number: PCT/FI98/00705 (22) International Filing Date: 9 September 1998 (09.09.98) (30) Priority Data: 973677 12 September 1997 (12.09.97) FI (71) Applicant (for all designated States except US): VTT [FI/FI]; Vuorimiehentie 5, FIN-02150 Espoo (FI). (72) Inventors; and (75) Inventors/Applicants (for US only): UOSUKAINEN, Seppo [FI/FI]; Lehmustie 1 B, FIN-00780 Helsinki (FI). VALIMÄKI, Vesa [FI/FI]; Mäenrinne 7 as. 3, FIN-02160 Espoo (FI). KIRJAVAINEN, Kari [FI/FI]; Kivenlahdenkatu 11 A 4, FIN-02320 Espoo (FI). LEKKALA, Jukka [FI/FI]; Liinaharjankatu 10, FIN-33730 Tampere (FI). NYKÄNEN, Hannu [FI/FI]; Timpurinkatu 3, FIN-33720 Tampere (FI). (74) Agent: KOLSTER OY AB; Iso Roobertinkatu 23, P.O. Box 148, FIN-00121 Helsinki (FI). | | (81) Designated States: AL, AM, AT, AT (Utility model), AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, CZ (Utility model), DE, DE (Utility model), DK, DK (Utility model), EE, EE (Utility model), ES, FI, FI (Utility model), GB, GE, GH, GM, HR, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SK (Utility model), SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG). Published <i>With international search report.</i> |

(54) Title: METHOD AND EQUIPMENT FOR ATTENUATING SOUND IN A DUCT



(57) Abstract

The invention relates to a method and an equipment for attenuating sound in a duct. Sound propagating in a duct is detected by means of a detector (2) and attenuated by using two successive monopole elements (3, 4) in such a way that both elements function as a dipole approximation and the elements are also used to approximatively produce the monopole radiation needed. A dipole control signal is fed to both elements (3, 4) at a phase shift which is 180° between the two elements. In addition, a monopole control signal is fed to the same elements (3, 4), only this time cophasally. Total volume velocities produced by the two elements (3, 4) are combinations of the portions obtained from the monopole and dipole sources.